VERMONT
DEPARTMENT OF HEALTH

Location of Death by Suicide and Suicide-Related EMS Calls

April 2023

Suicide morbidity and mortality have increased over the last several years in Vermont, with 2021 marking a record number of suicide deaths in the state in a single year. However, little is known about exactly where suicide deaths and non-fatal suicide activities, such as suicide attempts, ideations, and self-directed violence, are occurring in Vermont. This brief is focused on the location of suicide deaths and non-fatal suicide-related emergency medical services (EMS) incidents between 2018 and 2020.

KEY POINTS

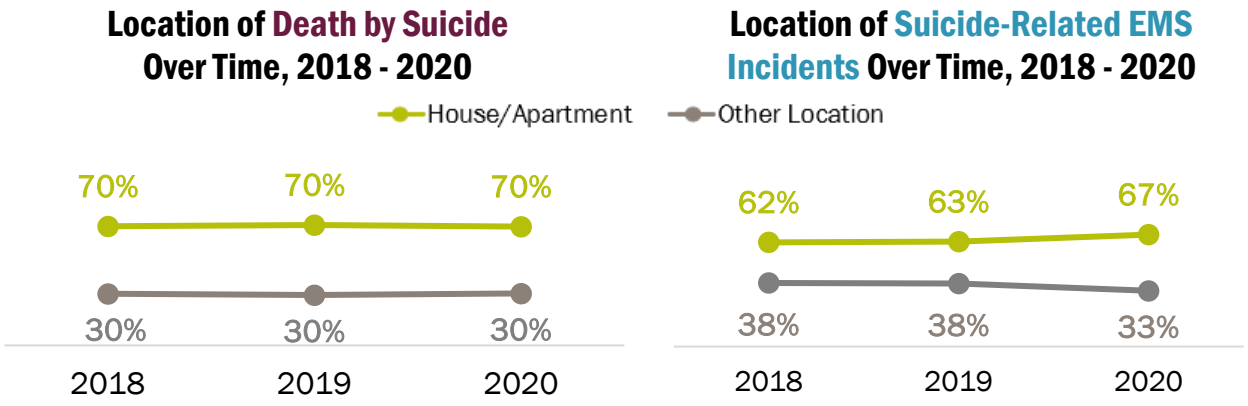
- **Most deaths by suicide (70%) and suicide-related EMS incidents (64%) occur at a home or apartment.**
- **Nearly one in ten deaths by suicide occur in a natural area (woods, fields, bodies of water, etc.).**
- **Suicide-related EMS incidents at hotels/ motels nearly doubled between 2018 and 2020 (22 vs. 40).**
- **The number of suicide-related EMS incidents at parking garages or parking lots increased between 2018 and 2020 (from 8 to 19).**

Home versus Other Locations

Most death by suicide in Vermont occur in the home, which includes driveways, porches, and yards (70%). This is consistent with national data where approximately 75% of deaths by suicide occur at a house or apartment.[1] In Vermont, most non-fatal suicide-related emergency medical services (EMS) incidents are at a home or apartment (64%). The percent of death by suicide occurring in a home versus another location type remained unchanged between 2018 and 2020. Suicide-related EMS incidents occurring in the home also remained statistically the same.

Locations of Suicide Deaths

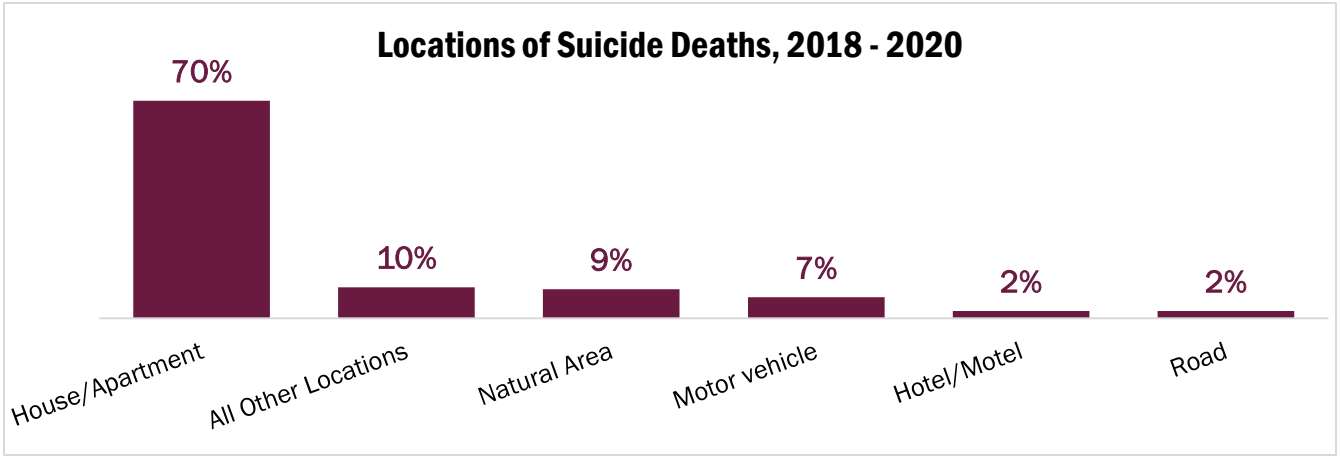
The majority of Vermont deaths by suicide occur in a house or apartment (70%). Following homes/apartments, nearly 1 in 10 suicide deaths happen in a natural area. A natural area is defined in VTVDRS as a field, river, beaches, or woods. Suicide deaths in motor vehicles account for 7% of deaths, while 2% are at hotels/motels, and 2% happen on roads (i.e., death occurred on a road, such as next to a car, down an embankment, or on a dead-end road).

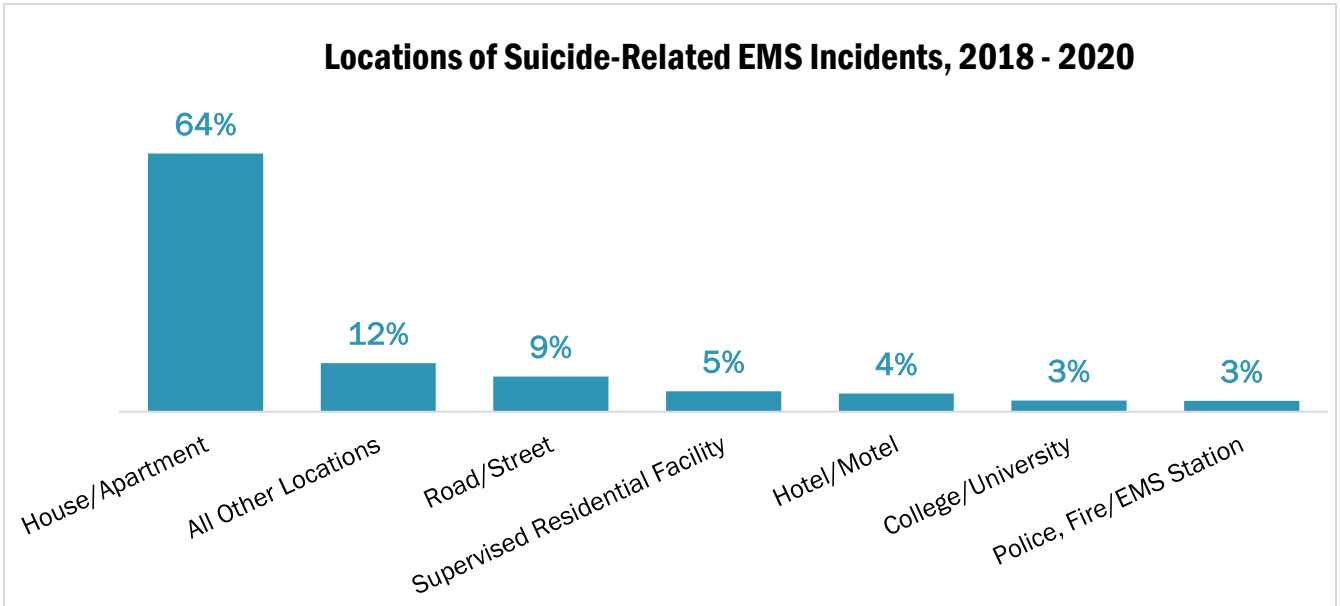


Sources: Statewide Incident Reporting Network (SIREN), 2018 – 2020 and Vermont Violent Death Reporting System (VTVDRS) 2018 – 2020.

Deaths by suicide are documented as occurring in a motor vehicle if the individual is found inside a motor vehicle, rather than the location of the vehicle (e.g., a motor vehicle parked at home, with a person inside who died by suicide would be a death location of motor vehicle). There are too few deaths by suicide occurring at bridges to be able to include in statistical analysis and is included in the "other" category (i.e., fewer than 6 deaths/EMS incidents).

The most common location of EMS incidents for a suicide-related reason are at a house or apartment (64%). The road or sidewalk is the next most common location for these incidents to occur (9%). Supervised residential facilities, which include nursing homes, homeless shelters, residential drug treatment centers, and other group homes, comprise 5% of suicide-related EMS incidents, followed by incidents occurring in hotels/motels at 4%. Incidents taking place at a police, fire, or rescue station made up 3% of all suicide-related EMS incidents, and incidents at college or university are 3% of EMS incidents.

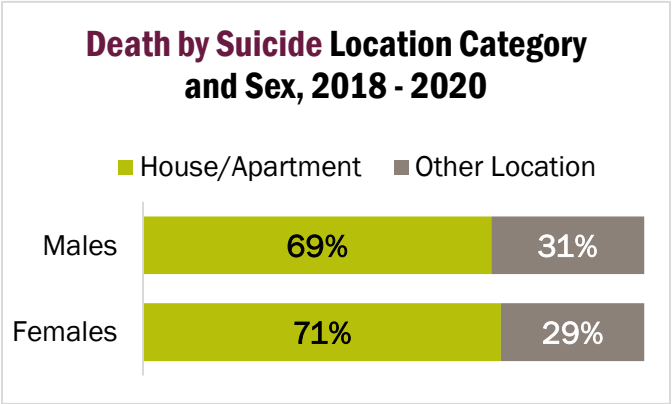




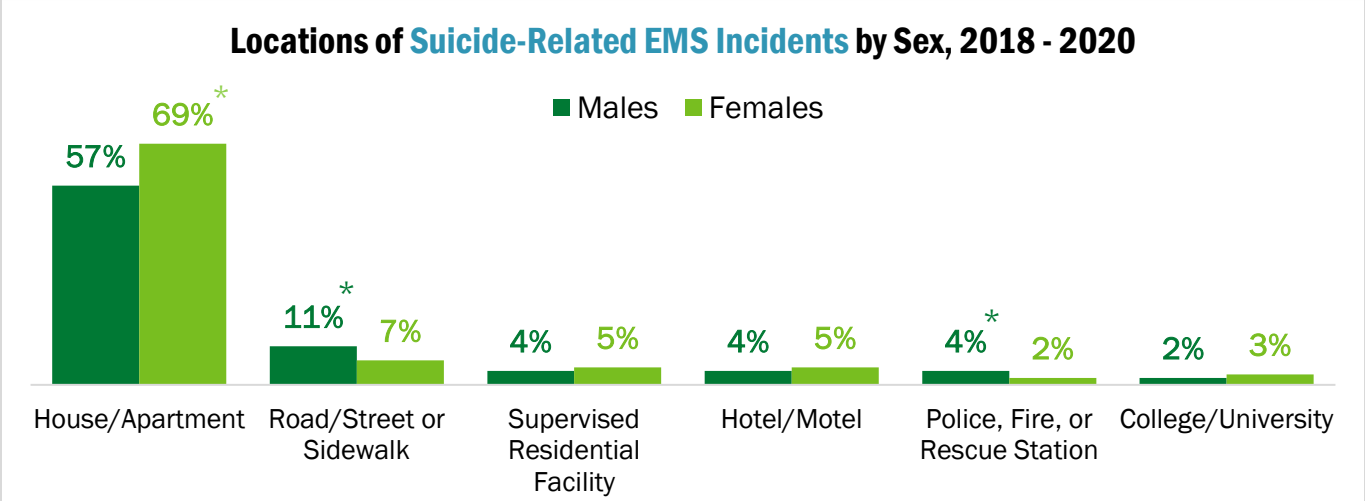
Sources: Statewide Incident Reporting Network (SIREN), 2018 – 2020 and Vermont Violent Death Reporting System (VTVDRS) 2018 – 2020.

Demographic Differences in Suicide Location: Biological Sex

Men and women die by suicide at home in similar proportions. However, the place of suicide-related EMS incidents is different for males and females. Females are more likely to have a suicide-related EMS incident at home than males (69% versus 57%). Males are more likely to have an EMS incident for suicide-related reasons occurring on a road or sidewalk and at police, fire, and rescue stations.



Source: Vermont Violent Death Reporting System (VTVDRS) 2018 – 2020.



* = statistically significant

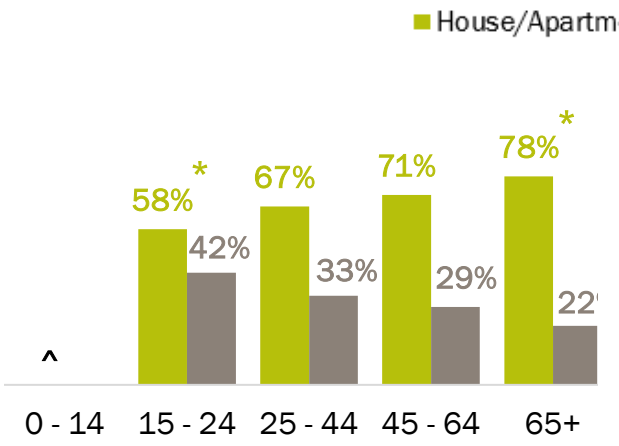
Source: Statewide Incident Reporting Network (SIREN) 2018 – 2020.

Demographic Differences in Suicide Location: Age

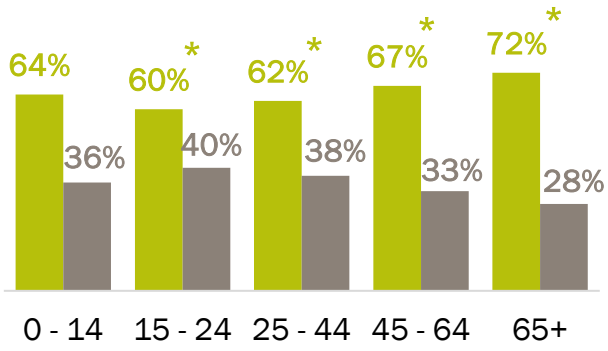
Suicide morbidity and mortality occurring in locations other than a house/apartment varies depending on age. Individuals ages 15 – 24 years old have higher percentages of both deaths by suicide and non-fatal suicide-related EMS incidents occurring in locations other than a home or apartment setting. The older a person is, the more likely a suicide death or EMS incident will occur at a home. In fact, individuals 65 and older have significantly higher percentages of deaths occurring in the home compared to those between the ages of 15 – 24 years old.

When comparing EMS incidents for suicide-related reasons by location category and age group, there are statistically significant differences between 15 – 24 years old and those 45 and older, as well as individuals between 25 – 44 years old compared to those 65 and older.

Location Category of Death by Suicide by Age Group, 2018 - 2020



Location Category of Suicide-Related EMS Incidents by Age Group, 2018 - 2020



* = statistically significant
^ = suppressed

Sources: Vermont Violent Death Reporting System (VTVDRS) 2018 – 2020, Statewide Incident Reporting Network (SIREN) 2018 – 2020.

Suicide Morbidity and Mortality Occurring in Natural Areas

Suicide deaths taking place in natural areas account for 9% of all deaths by suicide, and those 15-to-24 years old are most likely to take their life in a natural area. Less than one percent of EMS encounters for suicide-related reasons occur at a natural area. This suggests that when individuals go to a natural area (woods, fields, rivers, beaches) with an intent to end their life, death occurs prior to intervention by emergency medical services.

Means of Death

All deaths (100%) in VTVDRS during 2018 – 2020 that had a sharp instrument documented as the primary means used to inflict the fatal injury occurred at a house or apartment. Nearly three quarters of deaths caused by firearms take place at a house or apartment, while 8% of deaths by firearm are at a natural area.

Death by Suicide by Location Category and Means, 2018 - 2020

Source: Vermont Violent Death Reporting System (VTVDRS) 2018 – 2020.

Seven out of ten deaths by suicide via hanging or suffocation occur at a house or apartment followed by 12% in a natural area. The remaining deaths by suicide via hanging or suffocation happen in abandoned buildings, colleges/universities, commercial locations, hotels/motels, jails/prisons, motor vehicles, and parks/public use areas.

Deaths by suicide caused by poisonings occur most commonly at a house or apartment (75%). The remaining 25% of intentional poisoning deaths take place in motor vehicles, hotels/motels, and supervised residential facilities (e.g., shelters, group homes).

Key Takeaways

Suicide outcomes vary on whether a location is public or private.

Difference in trends can be found when comparing suicide morbidity and mortality by location. Locations for death by suicide and suicide-related EMS calls seem to be inversely related: locations with higher percentages of death by suicide tend to have lower percentages of EMS incidents for suicide-related reasons and vice versa. Private and more secluded locations, such as a home or apartment, natural areas (woods, fields, bodies or water) motor vehicles, roads, and hotels/motels have higher percentages of death by suicide. Locations where that are more public, and particularly locations that have staff available, like prisons/jails, supervised residential facilities, and public safety buildings, tend to have higher percentages of suicide-related EMS incidents. This suggests that there is a difference in suicide-related outcomes when actions are taken in locations that are more public, and therefore have more opportunity for intervention, versus private locations where suicide mortality is higher.

Understanding the specific location types of where suicide mortality and suicide-related EMS incidents are taking place can help prioritize where Vermont should focus suicide prevention resources and interventions. It is important for community members, which include EMS practitioners and other first responders, to receive mental health awareness training and be prepared to help a person in crisis. EMS are frequently called upon to respond to behavioral and mental health emergencies, either as the primary reason for the EMS activation or for other issues that affect the patient's clinical presentation.[2] EMS can be better prepared to respond to patients experiencing suicidal ideations, suicide attempts, or self-directed violence if they understand what location types tend to experience higher percentages of fatal and non-fatal suicide outcomes.

In some cases, the identification of specific locations or structures where a significant number of suicide attempts occur can inform other suicide prevention and mitigation strategies[3], such as the installation of physical barriers to reduce access, placement of signs and other mental health resources, and, as referred to above, mental health awareness training for community members and professionals who frequent or work in the identified location.[4] For example, data on the number of suicide deaths and attempts at the Quechee Gorge Bridge has led to the installation of safety barriers at the site.[5]

Methods

VTVDRS location data from 2018 – 2020 were analyzed to examine where Vermont resident deaths by suicide are occurring in in the state. Suicide-related EMS encounters are those with a 911 response type documented in the State's prehospital electronic patient care report (ePCR) system, SIREN, between 2018 and 2020, using the primary and secondary impression fields and keywords in the "cause of injury" field. EMS incident locations are examined using the NEMSIS v3.4 eLocation.09 field. Analysis is based on an EMS event and not necessarily an individual patient. EMS records that had an incident/patient disposition of "Cancelled on Scene", "Interfacility / Medical Transport", and "Patient Dead on Arrival (with or without transport)" are excluded from analysis.

Limitations

VTVDRS and SIREN data are two different data systems that serve unique purposes and analysis of suicide data from VTVDRS and SIREN may not always be comparable. Data from VTVDRS is subject to completeness and accuracy of information collected. VTVDRS only collects information on deaths that occur in Vermont and doesn't include residents who died outside of the state.

SIREN only captures incidents that result in EMS activation. Consequently, incidents in which EMS was not activated are not included in this analysis. For this reason, this report may underestimate the total burden of suicide-related outcome measures. A single patient may be represented in more than one EMS record if a patient received pre-hospital care involving more than one data-submitting EMS agency. EMS data may not be generalizable to Vermont residents since this analysis includes any incident that occurred in Vermont, regardless of residency status.

Resources to Get Help

If you or someone you know is thinking about or planning on taking their life, there is help available 24/7:

- Call 988, the National Suicide and Crisis Lifeline.
- Press 1 for the veteran's crisis line when prompted.
- Text "VT" to 741741, the Crisis Text Line, anywhere in the U.S. about any type of crisis.

References:

1. https://www.hsph.harvard.edu/means-matter/basic-suicide-facts/where/
2. https://pubmed.ncbi.nlm.nih.gov/33301370/
3. https://bmcpublichealth.biomedcentral.com/articles/10.1186/1471-2458-13-214
4. https://vtspc.org/suicide-awareness-and-support-training
5. https://vtrans.vermont.gov/projects/quechee

For more information about the data: Chelsea Dubie, Chelsea.Dubie@vermont.gov

For information about suicide prevention programming: Nick Nichols, Nick.Nichols@vermont.gov

For information on resources for suicide prevention: FacingSuicideVT.com